

X-RAY STORAGE RING PARAMETERS AS OF NOVEMBER 1997

Normal Operating Energy	2.584 GeV						
Maximum Operating Current	0.30 amp (10^{12} e-)						
Lifetime	~20 hours						
Circumference	170.1 meters						
Number of Beam Ports on Dipoles	30						
Number of Insertion Devices	5						
Maximum Length of Insertion Devices	< 4.50 meters						
$\lambda_c(E_e)$ at 1.25 T (B)	2.23 Å (5.6 keV)						
$\lambda_c(E_e)$ at 5.0 T (W)	0.56 Å (22.2 keV)						
B(ρ)	1.25 Tesla (6.875 meters)						
Electron Orbital Period	567.2 nanoseconds						
Damping Times (2.584 GeV)	$\tau_x = \tau_y = 6$ msec; $\tau_e = 3$ msec						
Touschek (2.584 GeV, 0.25A)	≥ 27 hrs ($v_{RF} = 700$ kV)						
Lattice Structure (Chasman-Green)	Separated Function, Quad Triplets						
Number of Superperiods	8						
Magnet Complement	<table style="border: none; margin-left: 20px;"> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td style="padding: 2px;">16 Bending (2.7 meters each)</td> </tr> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td style="padding: 2px;">40 Quadrupole (0.45 meters each)</td> </tr> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td style="padding: 2px;">16 Quadrupole (0.80 meters each)</td> </tr> </table>	{	16 Bending (2.7 meters each)	{	40 Quadrupole (0.45 meters each)	{	16 Quadrupole (0.80 meters each)
{	16 Bending (2.7 meters each)						
{	40 Quadrupole (0.45 meters each)						
{	16 Quadrupole (0.80 meters each)						
32 Sextupole	(0.20 meters each)						
Nominal Tunes (ν_x, ν_y)	9.15, 6.20						
Momentum Compaction	0.0056						
RF Frequency	52.88 MHz						
Radiated Power for Bending Magnets	144 kW/0.25 amp of Beam						
RF Peak Voltage	1000 kV						
Design RF Power	400 kW						
ν_s (Synchrotron Tune)	0.002						
Natural Energy Spread (σ_e/E)	8.6×10^{-4}						
Natural Bunch Length (2σ)	10.5 cm						
Number of RF Buckets	30						
Typical Bunch Mode	25						
Horizontal Damped Emittance (ϵ_x)	1.0×10^{-7} , meter-radian						
Vertical Damped Emittance (ϵ_y)	1×10^{-10} meter-radian						
Power per Horizontal Milliradian (0.25A)	23 Watts						

Arc Source Parameters

Betatron Function (β_x, β_y)	1.0 to 3.8 m, 7.9 to 26.5 m
Dispersion Function (η_x, η_y)	0.47 to -0.11, -0.39 to 0.22
$\alpha_{x,y} = -\beta'_{x,y}/2$	-0.49 to 1.62, -3.4 to 4.5
$\gamma_{x,y} = (1 + \alpha_{x,y}^2)/\beta_{x,y}$	0.952 to 0.962 m ⁻¹ , 0.81 to 0.52 m ⁻¹
Source Size (σ_x, σ_y)	371 to 565 μ m, 27 to 49 μ m
Source Divergence (σ_x, σ_y)	439 to 324 μ rad, 8 to 7 μ rad

Insertion Device Parameters

Betatron Function (β_x, β_y)	1.60 m, 0.35 m
Source Divergence (σ_x, σ_y)	260 μ rad, 35 μ rad